

# RAILTRACK

*Safety & Standards***SAFETY JUSTIFICATION****ISSUE: I****DOCUMENT INFORMATION**

<b>Document Title:</b>	<b>Provision of Overlaps, Flank Protection and Trapping</b>	
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**PART 1 – SCOPE OF SAFETY JUSTIFICATION**

The present Railway Group Standard (RGS) dealing with Overrun Protection and Mitigation, GK/RT0078 Issue 5, is to be split into two standards:

- GI/RT7006 Risk Assessment to Prevent and Mitigate OVERRUNS
- GK/RT0064 Provision of Overlaps, Flank Protection and Trapping

The former document addresses overrun risk assessment techniques and is still under development. The latter (this document) deals with the technical elements of providing protection from overruns, formerly referred to as “Basic Overrun Protection” in GK/RT0078.

Many of the measures went forward unchanged into the new RGS and this safety justification is therefore based on the changes only.

**PART 2 – RISKS BEING CONTROLLED**

The risks being controlled are those relating to collision and/or derailment as a consequence of a SPAD due to driver misjudgement, misread or disregard.

The main controls being applied are:

- The provision of an **overlap** of a length specified in the standard will eliminate collisions and derailments due to nearly all misjudgement SPADs. It will also mitigate against some SPADs in the other categories (disregard, miscommunication, misread), in the sense that a driver may be alerted to his misdeed by other factors and be travelling sufficiently slowly to stop within the overlap. Overlaps will not mitigate against high speed overruns such as Southall and Ladbroke Grove.
- **Point Flank Protection** will mitigate against a collision, but introduces significant secondary hazards of collision due to a train on the line to which the point flank protection diverts the runaway, and also derailment due to the SPADing train traversing points at too great a speed.
- **Trapping Protection** will mitigate against a primary collision, but at a certainty of derailment, probably at low speed (due to the circumstances in which it is provided). The derailment may foul other lines, resulting in a collision.
- **Track Flank Protection** will mitigate against a collision by placing or maintaining signals at danger against trains which are signalled into conflict with the SPADing train (which then may not be able to stop before a collision occurs).

### **PART 3 SUMMARY OF CHANGES TO CONTROLS**

1. The distance over which a permissible speed has to apply on the approach to a signal with a reduced overlap has been changed so that it relates to the permissible speed, rather than being a standard 400 metres.
2. The default overlap for a shunt route on a running line has been changed to 180m. However, it is permissible to reduce the overlap according to the approach speed, subject to risk assessment. It is also permissible for overlaps on shunt routes not to be provided where provision is made for the line ahead to be occupied – explicitly documenting accepted practice.
3. Where attainable speeds are used in the determination of overlap lengths, a permanent speed restriction must be applied if there is a risk of future changes in infrastructure or train performance resulting in the attainable speed increasing.
4. Criteria for assessing the risks of providing reduced or restricted overlaps due to driver misjudgement have been set out.
5. Compatibility with train protection systems (where provided) is required to be considered. In certain circumstances, extending the overlap beyond a TPWS protected signal beyond the minimum length may enhance the capability of the train protection system.

There are no significant changes in the application of flank points or tracks, or in the provision of trap points.

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### **PART 4 – COSTS AND BENEFITS**

This RGS groups together the control measures specific to the provision of overlaps, flank protection and trapping. This grouping has been undertaken as part of the disaggregation and realignment of GK/RT0078 'Overrun Protection and Mitigation', from which the relevant control measures have been transferred.

As part of this exercise, the opportunity has been taken to strengthen a minority of the control measures where appropriate. The modifications ensure that the requirements are fit for purpose, being more explicit where necessary and being robust to changes in operations and the introduction of new technology e.g. TPWS.

The cost implications associated with the issue of the RGS are judged to be minor. The benefits are evident in the context of the wider restructuring of the signalling standards, including the replacement of GK/RT0078. The consolidation of the control measures associated with the provision of overlaps, flank protection and trapping in a single RGS is a logical grouping within the redefined hierarchy of standards. It provides a clear focus for managing this specific area and, by doing so, should improve the effectiveness of implementation.

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### **PART 5- CONCLUSIONS**

The requirements in this RGS are taken from GK/RT0078, some of which have been strengthened or modified to ensure that they are fit for purpose. GK/RT0064 contributes to reducing risks to ALARP when taken in the context of other control measures, and cost implications are considered to be minor. GK/RT0064 is therefore considered to be justified.